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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,715	11/15/2001	Ernest R. Siler	DP-305919	3513

7590 12/31/2003

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EXAMINER	
WILLIAMS, THOMAS J	
ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/001,715	SILER ET AL.	
	Examiner	Art Unit	
	Thomas J. Williams	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-18* is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 16, 2003 has been entered.

2. Acknowledgment is made in the receipt of amendment B filed October 16, 2003.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-6 and 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 4 line 1, it is unclear which of the plurality of first portions (either the first portion of the outer surface, the first portion of the undercut wall, or the first portion of the transversely and ductilely elongated portion) that "the first portion" is referencing.

Claims 5 and 6 are rejected due to their dependence upon claim 4.

6. Claim 10 line 1, it is unclear which of the plurality of first portions (either the first portion of the outer surface, the first portion of the undercut wall, or the first portion of the transversely and ductilely elongated portion) that "the first portion" is referencing.

Claims 11 and 12 are rejected due to their dependence upon claim 10.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3,850,046 to Nilsson in view of US 2,905,124 to Henchert.

Re-claim 1, Nilsson teaches a ball nut assembly comprising: a ball nut including a radial through slot (interpreted as the combination of 8 and 9), the nut has an outer surface that defines a first portion, a ledge 10 partially bounds the slot; a crossover member 4 has a flange supported against inward movement by the ledge (see figure 4), a crossover groove portion is disposed in the slot, the flange is transversely and ductilely elongated portion (by a punch process, see column 1 lines 55-57), the flange is supported against inward movement without the transversely and ductilely elongated portion.

However, Nilsson fails to teach the specifics of the punch process. Henchert teaches an attachment means by which a punch 18 (or press member) transversely and ductilely elongates a flange into a recess formed by a ledge and undercut wall. It would have been obvious to one of ordinary skill in the art to have ductilely elongated the flange of Nilsson into a recess formed by an undercut wall and ledge as taught by Henchert, thus preventing the separation of the crossover member from the nut in the assembly of Nilsson.

Re-claims 2 and 8, the ledge 10 surrounds the slot and has an annular shape.

Re-claims 3 and 9, Henchert teaches the attachment method as having an undercut wall. It would have been obvious to one of ordinary skill in the art to have provided the assembly of Nilsson with an undercut wall for receiving the ductilely elongated portion as taught by Henchert, (see figure 5) thus providing a positive means by which to retain the ductilely elongated portion.

Re-claims 4 and 10, Nilsson teaches several first portion elements that have a cylindrical shape, one example is the ball nut itself, another is the cylindrical end portions of the slot (see figure 3).

Re-claims 5 and 11, the crossover member 4 has a flat outward facing surface 6 disposed below the first portion of the outer surface. In addition the flat outward surface can be interpreted as the material formed by the punch process.

Re-claims 6 and 12, Nilsson teaches an economical ball nut assembly that is easily manufactured. However, Nilsson fails to teach the ball nut assembly used in electrically operated brake system. As admitted by the applicant, the use of ball nut assemblies is known in the brake arts, as noted in the background. The examiner takes official notice that it would have

been obvious to one of ordinary skill in the art to have utilized the ball nut assembly of Nilsson as modified by Henchert in a vehicle brake system, specifically an electrically operated brake system, thus reducing costs and assembly time for the brake system.

Re-claim 7, Nilsson teaches a ball nut assembly comprising: a ball nut including an inside helical groove, a radial through slot, an outer surface that defines a first portion, a ledge 10 partially bounds the slot; a crossover member 4 has a flange supported against inward movement by the ledge (see figure 4), a crossover grooved portion is disposed in the slot, the flange is transversely and ductilely elongated portion (by a punch process, see column 1 lines 55-57), the flange is supported against inward movement without the transversely and ductilely elongated portion; a ball screw 2 has an outside helical groove; a plurality of balls 3 contact the crossover grooved portion and the outside grooves.

However, Nilsson fails to teach the specifics of the punch process. Henchert teaches an attachment means by which a punch 18 (or press member) transversely and ductilely elongates a flange into a recess formed by a ledge and undercut wall. It would have been obvious to one of ordinary skill in the art to have ductilely elongated the flange of Nilsson into a recess formed by an undercut wall and ledge as taught by Henchert, thus preventing the separation of the crossover member from the nut in the assembly of Nilsson.

Re-claim 13, Nilsson teaches a method for making a ball nut assembly comprising: obtaining a ball nut including a radial through slot and including an outer surface that defines a first portion, a ledge 10 partially bounds the slot; obtaining a crossover member 4 having a flange supported against inward movement by the ledge (see figure 4), a crossover groove portion and a crossover groove portion; disposing the crossover member from the outside the ball

nut to have the flange supported against radially inward movement by the ledge and the crossover grooved portion disposed in the slot; and transversely and ductilely elongating the flange creating a staked portion (by a punch process, see column 1 lines 55-57).

However, Nilsson fails to teach the specifics of the punch process. Henchert teaches an attachment means by which a punch 18 (or press member) transversely and ductilely elongates a flange into a recess formed by a ledge and undercut wall. It would have been obvious to one of ordinary skill in the art to have ductilely elongated the flange of Nilsson into a recess formed by an undercut wall and ledge as taught by Henchert, thus preventing the separation of the crossover member from the nut in the assembly of Nilsson.

Allowable Subject Matter

10. Claims 14-18 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to anticipate or render obvious a method of manufacturing a ball nut, wherein a step of aligning the ball nut on a locating arbor simulates balls placed around a ball screw.

Response to Arguments

12. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hawkins teaches a means of attaching two separate elements through use of a punch. Blaurock et al. teaches a ball nut assembly.

14. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached at (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

December 15, 2003

THOMAS WILLIAMS
PATENT EXAMINER

Thomas Williams

AU 3683

12-15-03